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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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			1772	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/724,596

Applicant(s)

PYNENBURG, RORY ALBERT
JAMES

Examiner

Walter B Aughenbaugh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 42-53 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 42-53 is/are rejected.
- 7) ☒ Claim(s) 48,49 and 53 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>02/27/04</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

1. The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.
2. The amendment filed December 1, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the recitations "tie layers of less than about 10 μm thickness", "having a low melting point and a high vicat softening temperature" and "having a thickness of less than 100 μm " added to claims 42, 49 and 53, respectively. See 35 U.S.C. 112, first paragraph rejection of claims 42, 49 and 53 made of record below in this Office Action.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Objections

3. Claims 48, 49 and 53 are objected to because of the following informalities: In regard to claim 48, if there is a second and third melting point, there should be a first melting point as well. Examiner suggests that the nomenclature used in claim 48 be amended. In regard to claim 49, should "vicat" be capitalized? In regard to claim 53, the word "having" in the second-to-last line of the claim should be changed to "has" or a similar amendment should be made.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 42, 49 and 53 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In regard to claim 42, the recitation "tie layers of less than about 10 μm thickness" is not supported in the specification as originally filed: the statement in lines 21-22 of page 12 that the tie layers are "generally between 1 to 10 μm in thickness" does not support this recitation (the specification sets a minimum value, while the subject recitation does not). In regard to claim 49, the recitation "having a low melting point and a high vicat softening temperature" is not supported in the specification as originally filed. In regard to claim 53, the recitation "having a thickness of less than 100 μm " is not supported in the specification as originally filed: the statements at page 4, lines 11-13 and page 10, lines 14-16 do not establish that the sealant layer itself has "a thickness of less than 100 μm ".

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 42 and 49 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In regard to claim 42, the recitation "between the inner barrier layer and the respective sealant layer and the outer barrier layer" renders the claim indefinite since the locations of the tie layers relative to the inner barrier layer, sealant layer and outer barrier layer

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cannot be ascertained: how many tie layers are there? Each tie layer is between which two layers? The terms “low” and “high” in claim 49 are a relative terms which render the claim indefinite. The term terms “low” and “high” are not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention: a “low melting point” compared to what? A “high vicat softeneing temperature” compared to what?

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 42 is rejected under 35 U.S.C. 102(b) as being anticipated by Louie et al.

Louie et al. teach a laminate package for an energy storage device (col. 1, lines 5-10 and Fig. 3 and 4) having two terminals (items 34 and 36, col. 3, lines 21-24 and 54-67 and Fig. 1, 3 and 4). Louie et al. teach that the laminate package includes an inner barrier layer for defining a cavity to contain the energy storage device (Fig. 3) having two opposed portions (corresponding to layer 25 at the top of Fig. 1 and layer 23 at the bottom of Fig. 1 which are coextruded with a polymer that serves as a vapor barrier, see col. 2, lines 31-41) that are sealingly engaged with each other and from between which the terminals extend from the cavity (col. 2, lines 31-50, col. 4, lines 16-48 and Fig. 1, 3 and 4). Louie et al. teach a sealant layer (corresponding to polymer sealing strip, item 30) disposed intermediate the inner barrier layer and the terminals (see Fig. 3). Louie et al. teach an outer barrier layer (corresponding to either layer 23 or 27 at the top of Fig. 1

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and either layer 25 or 27 at the bottom of Fig. 1- layers 23 and 25 are coextruded with a polymer that serves as a vapor barrier and layer 27 is polyvinylidene chloride, which is a vapor barrier, see col. 2, lines 31-44) that is bonded to the inner barrier layer (Fig. 1). Louie et al. teach that the package has a metal layer (metal foils 14 and 26, col. 2, lines 50-55). Louie et al. teach that the package includes tie layers having a thickness of about 10 microns (metal foils 14 and 26) that are disposed between the sealant layer (item 30) and the inner barrier (layer 25 at the top of Fig. 1 and layer 23 at the bottom of Fig. 1) and the outer barrier (either layer 23 or 27 at the top of Fig. 1 and either layer 25 or 27 at the bottom of Fig. 1) layers (col. 2, lines 50-58 and Fig. 1, the metal foils 14 and 26 are tie layers in that they tie the electrodes 22 and 16, respectively, to the packaging films 28 and 12; the teaching “about 10 microns” includes values less than 10 microns, so the “about 10 microns” teaching meets the “less than about 10 μm ” recitation of claim 1).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 43-48 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Louie et al. in view of Sasaki et al.

In regard to claims 43-45, Louie et al. teach the package as discussed above in regard to claim 42.

Louie et al. fail to teach that the sealant layer is a resin containing between about 5% and 10% ethylene acrylic acid. Sasaki et al. disclose a container (item 5) for an energy storage device having two terminals (corresponding to the leads labelled "3") (col. 8, lines 15-25 and col. 17, lines 34-44 and Fig. 8). Sasaki et al. disclose that a heat fusion bonding seal material is coated onto the leads (item 3) and covers the outer periphery of the lower and upper layers of the container, where the heat fusion bonding seal material coating on the leads is labelled "1" in Figure 8, and the periphery covered by the heat fusion bonding seal material is labelled "2" in Figure 8 (col. 17, lines 34-54). Sasaki et al. disclose that the heat fusion bonding seal material is ethylene acrylic acid copolymer, ethylene methacrylic acid copolymer, or combinations of these materials with any polyethylene resin (col. 9, lines 15-21, col. 19, lines 35-38 and 47-62 and col. 19, line 65-col. 20, line 27) and that the resulting resins absorb very small amounts of water. Therefore, one of ordinary skill in the art would have recognized to have used the mixture of ethylene acrylic acid copolymer and any polyethylene resin as the sealant of Louie et al., since a mixture of ethylene acrylic acid copolymer and any polyethylene resin is a suitable sealant material for use in containers of energy storage devices having terminals that absorb acceptable amounts of water as taught by Sasaki et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the mixture of ethylene acrylic acid copolymer and any polyethylene resin as the sealant of Louie et al., since a mixture of ethylene acrylic acid copolymer and any polyethylene resin is a suitable sealant material for use in containers of energy storage devices having terminals that absorb acceptable amounts of water as taught by Sasaki et al.

In regard to the claimed amount of ethylene acrylic acid of “between about 5% and 10%” as claimed in claim 43 and of “about 6% to 9%” as claimed in claim 44, since Sasaki et al. disclose that the heat fusion bonding seal material is ethylene acrylic acid copolymer, ethylene methacrylic acid copolymer, or combinations of these materials with any polyethylene resin (col. 9, lines 15-21, col. 19, lines 35-38 and 47-62 and col. 19, line 65-col. 20, line 27) and that the resulting resins absorb very small amounts of water, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the relative amounts of ethylene acrylic acid in the mixture of ethylene acrylic acid copolymer and any polyethylene resin of Sasaki et al. required to achieve the optimal sealing and water absorption properties depending on the particular desired end result.

In regard to claim 45, the mixture of ethylene acrylic acid copolymer and any polyethylene resin of Sasaki et al. is an acid modified polyolefin.

In regard to claim 46, Louie et al. teach the package as discussed above. Louie et al. fail to explicitly teach that the melting point of the outer barrier layer is higher than the melting point of the inner barrier layer. Sasaki et al., however, disclose that the walls of the container have a laminate structure having a sheath layer (item 17) that corresponds to the outer barrier layer as claimed by Applicant and a sealant layer (item 19) that corresponds to the inner barrier layer as

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claimed by Applicant (col. 11, lines 20-33 and Fig. 6A, 6B, 7 and 8). Sasaki et al. disclose that the melting point of the sheath layer (item 17, the outer barrier layer as claimed) is higher than the sealant layer (item 19, the inner barrier layer as claimed) (col. 11, lines 20-26). Sasaki et al. disclose that as a result of heating and cooling below the melting point of the material of the sealant layers, the sealant layers (item 19) of the upper and lower walls of the container are strongly heat fusion bonded together (col. 12, lines 36-49). One of ordinary skill in the art would have recognized that the higher melting point of the outer barrier layer relative to that of the inner barrier layer enables the walls of the container to be heated to a temperature at which the material of inner barrier layer softens while the material of the outer barrier layer is unaffected so that the inner barrier layers are strongly heat fusion bonded together upon cooling to below the melting point of the inner barrier layer while the outer barrier layer is not affected. Therefore, one of ordinary skill in the art would have recognized to have selected the materials of the inner and outer barrier layers of Louie et al. such that the melting point of the outer barrier layer is higher than the melting point of the inner barrier layer in order to enable the walls of the container to be heated to a temperature at which the material of inner barrier layer softens while the material of the outer barrier layer is unaffected so that the inner barrier layers are strongly heat fusion bonded together upon cooling to below the melting point of the inner barrier layer while the outer barrier layer is not affected as taught by Sasaki et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the materials of the inner and outer barrier layers of Louie et al. such that the melting point of the outer barrier layer is higher than the melting point of the inner barrier layer in order to enable the walls of the container to be heated to a temperature at which

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the material of inner barrier layer softens while the material of the outer barrier layer is unaffected so that the inner barrier layers are strongly heat fusion bonded together upon cooling to below the melting point of the inner barrier layer while the outer barrier layer is not affected as taught by Sasaki et al.

In regard to claims 47 and 48, Louie et al. teach the package as discussed above. Louie et al. fail to explicitly teach that the melting point of the inner barrier layer is greater than or equal to the melting point of the sealant layer. Sasaki et al., however, discloses that the melting point of the inner barrier layer (item 19) is greater than the melting point of the heat fusion bonding seal material (col. 11, lines 26-33). Sasaki et al. discloses that upon cooling of the heat fusion bonding seal material (item 1) which is coated on the terminals to below the melting point of the heat fusion bonding seal material (item 1), the heat fusion bonding seal material (item 1) is bonded more strongly to the metal of the terminal than to the inner barrier layer, and therefore an excellent adhesion between the metal of the terminal and the heat fusion bonding seal material (item 1) is obtained (col. 12, lines 44-60 and col. 19, lines 35-39). Therefore, one of ordinary skill in the art would have recognized to have selected the materials of the sealant layer and the inner barrier layer of Louie et al. such that the melting point of the inner barrier layer is higher than the melting point of the sealant layer in order to obtain excellent adhesion between the metal of the terminal and the sealant material (the heat fusion bonding seal material, item 1 of Sasaki et al.) as taught by Sasaki et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the materials of the sealant layer and the inner barrier layer of Louie et al. such that the melting point of the inner barrier layer is higher than the melting point of the

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sealant layer in order to obtain excellent adhesion between the metal of the terminal and the sealant material (the heat fusion bonding seal material, item 1 of Sasaki et al.) as taught by Sasaki et al.

In regard to claim 53, Louie et al. teach a laminate package for an energy storage device (col. 1, lines 5-10 and Fig. 3 and 4) having two terminals (items 34 and 36, col. 3, lines 21-24 and 54-67 and Fig. 1, 3 and 4). Louie et al. teach that the laminate package includes an inner barrier layer (corresponding to layer 25 at the top of Fig. 1 and layer 23 at the bottom of Fig. 1 which are coextruded with a polymer that serves as a vapor barrier, see col. 2, lines 31-41) for defining a cavity to contain the energy storage device (Fig. 3). Louie et al. teach a sealant layer (corresponding to polymer sealing strip, item 30) disposed between, and sealingly engaged with, the inner barrier layer and the terminals (see Fig. 3). Louie et al. teach an outer barrier layer (corresponding to either layer 23 or 27 at the top of Fig. 1 and either layer 25 or 27 at the bottom of Fig. 1- layers 23 and 25 are coextruded with a polymer that serves as a vapor barrier and layer 27 is polyvinylidene chloride, which is a vapor barrier, see col. 2, lines 31-44) that is bonded to the inner barrier layer (Fig. 1). Louie et al. teach that the package has a metal layer (metal foils 14 and 26, col. 2, lines 50-55).

Louie et al. fail to explicitly teach that the melting point of the sealant layer is less than the melting point of the inner barrier layer or that the melting point of the outer barrier layer is greater than the melting point of the inner barrier layer and that the sealant layer has a thickness of less than 100 microns.

Sasaki et al., however, disclose that the walls of the container have a laminate structure having a sheath layer (item 17) that corresponds to the outer barrier layer as claimed by

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Applicant and a sealant layer (item 19) that corresponds to the inner barrier layer as claimed by Applicant (col. 11, lines 20-33 and Fig. 6A, 6B, 7 and 8). Sasaki et al. disclose that the melting point of the sheath layer (item 17, the outer barrier layer as claimed) is higher than the sealant layer (item 19, the inner barrier layer as claimed) (col. 11, lines 20-26). Sasaki et al. disclose that as a result of heating and cooling below the melting point of the material of the sealant layers, the sealant layers (item 19) of the upper and lower walls of the container are strongly heat fusion bonded together (col. 12, lines 36-49). One of ordinary skill in the art would have recognized that the higher melting point of the outer barrier layer relative to that of the inner barrier layer enables the walls of the container to be heated to a temperature at which the material of inner barrier layer softens while the material of the outer barrier layer is unaffected so that the inner barrier layers are strongly heat fusion bonded together upon cooling to below the melting point of the inner barrier layer while the outer barrier layer is not affected. Furthermore, Sasaki et al., discloses that the melting point of the inner barrier layer (item 19) is greater than the melting point of the heat fusion bonding seal material (col. 11, lines 26-33). Sasaki et al. discloses that upon cooling of the heat fusion bonding seal material (item 1) which is coated on the terminals to below the melting point of the heat fusion bonding seal material (item 1), the heat fusion bonding seal material (item 1) is bonded more strongly to the metal of the terminal than to the inner barrier layer, and therefore an excellent adhesion between the metal of the terminal and the heat fusion bonding seal material (item 1) is obtained (col. 12, lines 44-60 and col. 19, lines 35-39). Therefore, one of ordinary skill in the art would have recognized to have selected the materials of the sealant layer, the inner barrier layer and the outer barrier layer of Louie et al. such that the melting point of the outer barrier layer is higher than the melting point of the inner barrier layer

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in order to enable the walls of the container to be heated to a temperature at which the material of inner barrier layer softens while the material of the outer barrier layer is unaffected so that the inner barrier layers are strongly heat fusion bonded together upon cooling to below the melting point of the inner barrier layer while the outer barrier layer is not affected as taught by Sasaki et al. and such that the melting point of the inner barrier layer is higher than the melting point of the sealant layer in order to obtain excellent adhesion between the metal of the terminal and the sealant material (the heat fusion bonding seal material, item 1 of Sasaki et al.) as taught by Sasaki et al.

In regard to the recitation that the sealant layer has a thickness of less than 100 microns, Sasaki et al. disclose that a suitable thickness range for the sealant layer, item 19, is from 10 to 100 microns (col. 15, lines 9-15). Therefore, one of ordinary skill in the art would have recognized to have used a sealant layer having a thickness of 10 to 100 microns as the sealant layer of Louie et al. since a thickness range of from 10 to 100 microns is a suitable thickness range for a sealant layer of a laminate package for an energy storage device as taught by Sasaki et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the materials of the sealant layer, the inner barrier layer and the outer barrier layer of Louie et al. such that the melting point of the outer barrier layer is higher than the melting point of the inner barrier layer in order to enable the walls of the container to be heated to a temperature at which the material of inner barrier layer softens while the material of the outer barrier layer is unaffected so that the inner barrier layers are strongly heat fusion bonded together upon cooling to below the melting point of the inner barrier layer while the outer barrier

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layer is not affected as taught by Sasaki et al. and such that the melting point of the inner barrier layer is higher than the melting point of the sealant layer in order to obtain excellent adhesion between the metal of the terminal and the sealant material (the heat fusion bonding seal material, item 1 of Sasaki et al.) as taught by Sasaki et al. and to have used a sealant layer having a thickness of 10 to 100 microns as the sealant layer of Louie et al. since a thickness range of from 10 to 100 microns is a suitable thickness range for a sealant layer of a laminate package for an energy storage device as taught by Sasaki et al.

11. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Louie et al. in view of Naraoka et al.

Louie et al. teach a laminate package for an energy storage device (col. 1, lines 5-10 and Fig. 3 and 4) having two terminals (items 34 and 36, col. 3, lines 21-24 and 54-67 and Fig. 1, 3 and 4). Louie et al. teach that the laminate package includes an inner barrier layer (corresponding to layer 25 at the top of Fig. 1 and layer 23 at the bottom of Fig. 1 which are coextruded with a polymer that serves as a vapor barrier, see col. 2, lines 31-41) for defining a cavity to contain the energy storage device (Fig. 3). Louie et al. teach a sealant layer (corresponding to polymer sealing strip, item 30) disposed between, and sealingly engaged with, the inner barrier layer and the terminals (see Fig. 3). Louie et al. teach an outer barrier layer (corresponding to either layer 23 or 27 at the top of Fig. 1 and either layer 25 or 27 at the bottom of Fig. 1- layers 23 and 25 are coextruded with a polymer that serves as a vapor barrier and layer 27 is polyvinylidene chloride, which is a vapor barrier, see col. 2, lines 31-44) that is bonded to the inner barrier layer (Fig. 1). Louie et al. teach that the package has a metal layer (metal foils 14 and 26, col. 2, lines 50-55). Louie et al. teach that the package sealingly contains the energy storage device and the terminals

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are accessible from outside the package (Fig. 3). The phrase “for allowing external electrical connection to the energy storage device” is an intended use phrase which has not been given patentable weight, since it has been held that a recitation with respect to the manner in which a claimed article is intended to be employed does not differentiate the claimed article from a prior art article satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQd 1647 (1987).

Louie et al. teach that polyethylene is a suitable polymer for the inner barrier layer (col. 2, lines 31-37). Polyethylene has a low melting point when compared with other polymers, as evidenced by pages 286-287 of P.C. Painter and M.M. Coleman, *Fundamentals of Polymer Science, Second Edition*, which states “those polymers with strong intermolecular forces would have a higher melting point than those where the attractions are weaker (see last four lines of text of page 286, where polyethylene is specifically provided as an example of a polymer having weak intermolecular forces).

Louie et al. teach that the packaging films, items 28 and 12, are sealed together via the sealing strip tabs, item 30, with a heat press (col. 4, lines 26-36), as opposed to being directly heat sealed per convention (col. 4, lines 21-24).

Louie et al. fail to explicitly teach that the polyethylene of the inner barrier layer has a high Vicat softening temperature.

Naraoka et al., however, disclose that a polyethylene layer having a high Vicat softening temperature is a heat resisting layer (col. 3, lines 59-65). Since Louie et al. teach that the inner barrier layers are not heat sealed together directly, one of ordinary skill in the art would have recognized to have used a polyethylene layer having a high Vicat softening temperature as the inner barrier layers of Louie et al. so that the inner barrier layers do not seal together directly

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while the packaging films, items 28 and 12, are sealed together via the sealing strip tabs, item 30, with a heat press by virtue of the heat resistance of the polyethylene having a high Vicat softening temperature as taught by Naraoka et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a polyethylene layer having a high Vicat softening temperature as the inner barrier layers of Louie et al. so that the inner barrier layers do not seal together directly while the packaging films, items 28 and 12, are sealed together via the sealing strip tabs, item 30, with a heat press by virtue of the heat resistance of the polyethylene having a high Vicat softening temperature as taught by Naraoka et al.

12. Claims 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Louie et al. in view of Naraoka et al. and in further view of Sasaki et al.

In regard to claim 50, Louie et al. and Naraoka et al. teach the package as discussed above. Louie et al. and Naraoka et al. fail to explicitly teach that the melting point of the outer barrier layer is higher than the melting point of the inner barrier layer. Sasaki et al., however, disclose that the walls of the container have a laminate structure having a sheath layer (item 17) that corresponds to the outer barrier layer as claimed by Applicant and a sealant layer (item 19) that corresponds to the inner barrier layer as claimed by Applicant (col. 11, lines 20-33 and Fig. 6A, 6B, 7 and 8). Sasaki et al. disclose that the melting point of the sheath layer (item 17, the outer barrier layer as claimed) is higher than the sealant layer (item 19, the inner barrier layer as claimed) (col. 11, lines 20-26). Sasaki et al. disclose that as a result of heating and cooling below the melting point of the material of the sealant layers, the sealant layers (item 19) of the upper and lower walls of the container are strongly heat fusion bonded together (col. 12, lines 36-49).

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One of ordinary skill in the art would have recognized that the higher melting point of the outer barrier layer relative to that of the inner barrier layer enables the walls of the container to be heated to a temperature at which the material of inner barrier layer softens while the material of the outer barrier layer is unaffected so that the inner barrier layers are strongly heat fusion bonded together upon cooling to below the melting point of the inner barrier layer while the outer barrier layer is not affected. Therefore, one of ordinary skill in the art would have recognized to have selected the materials of the inner and outer barrier layers of Louie et al. and Naraoka et al. such that the melting point of the outer barrier layer is higher than the melting point of the inner barrier layer in order to enable the walls of the container to be heated to a temperature at which the material of inner barrier layer softens while the material of the outer barrier layer is unaffected so that the inner barrier layers are strongly heat fusion bonded together upon cooling to below the melting point of the inner barrier layer while the outer barrier layer is not affected as taught by Sasaki et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the materials of the inner and outer barrier layers of Louie et al. and Naraoka et al. such that the melting point of the outer barrier layer is higher than the melting point of the inner barrier layer in order to enable the walls of the container to be heated to a temperature at which the material of inner barrier layer softens while the material of the outer barrier layer is unaffected so that the inner barrier layers are strongly heat fusion bonded together upon cooling to below the melting point of the inner barrier layer while the outer barrier layer is not affected as taught by Sasaki et al.

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In regard to claims 51 and 52, Louie et al. and Naraoka et al. teach the package as discussed above. Louie et al. and Naraoka et al. fail to explicitly teach that the melting point of the inner barrier layer is greater than or equal to the melting point of the sealant layer. Sasaki et al., however, discloses that the melting point of the inner barrier layer (item 19) is greater than the melting point of the heat fusion bonding seal material (col. 11, lines 26-33). Sasaki et al. discloses that upon cooling of the heat fusion bonding seal material (item 1) which is coated on the terminals to below the melting point of the heat fusion bonding seal material (item 1), the heat fusion bonding seal material (item 1) is bonded more strongly to the metal of the terminal than to the inner barrier layer, and therefore an excellent adhesion between the metal of the terminal and the heat fusion bonding seal material (item 1) is obtained (col. 12, lines 44-60 and col. 19, lines 35-39). Therefore, one of ordinary skill in the art would have recognized to have selected the materials of the sealant layer and the inner barrier layer of Louie et al. and Naraoka et al. such that the melting point of the inner barrier layer is higher than the melting point of the sealant layer in order to obtain excellent adhesion between the metal of the terminal and the sealant material (the heat fusion bonding seal material, item 1 of Sasaki et al.) as taught by Sasaki et al.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have selected the materials of the sealant layer and the inner barrier layer of Louie et al. and Naraoka et al. such that the melting point of the inner barrier layer is higher than the melting point of the sealant layer in order to obtain excellent adhesion between the metal of the terminal and the sealant material (the heat fusion bonding seal material, item 1 of Sasaki et al.) as taught by Sasaki et al.

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Conclusion

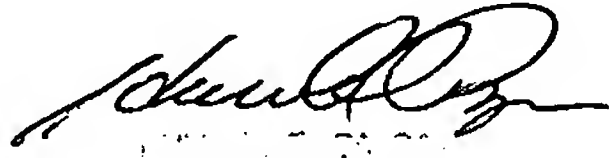
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter B. Aughenbaugh whose telephone number is 571-272-1488. The examiner can normally be reached on Monday-Thursday from 9:00am to 6:00pm and on alternate Fridays from 9:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Walter B. Aughenbaugh
03/04/05

WBA


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